

What is claimed:

1. A method of preventing, reducing, or inhibiting invasiveness and metastasis of tumor cells in a subject comprising administering to the subject a therapeutically effective amount of the B-subunit of Shiga toxin.

2. The method of claim 1, wherein the tumor cells are colon tumor cells.

3. The method of claim 1, wherein the tumor cells are derived from a tissue selected from the group consisting of: colon, lung, brain, skin, ovary, pancreas, liver, stomach, bladder, bone, testicle, uterus, adipose tissue, throat, kidney, tongue, pituitary gland, thyroid, lymphoid tissue, eye, and cervix.

4. The method of any one of claims 1-3, wherein the B-subunit of Shiga toxin is Stx1B.

5. The method of any one of claims 1-3, wherein the B-subunit of Shiga toxin is Stx2B.

6. The method of any one of claims 1-5, wherein the therapeutically effective amount of the B-subunit of shiga toxin is administered prior to the onset of metastasis by the tumor cells.

7. The method of any one of claims 1-5, wherein the therapeutically effective amount of the B-subunit of shiga toxin is administered subsequent to the onset of metastasis by the tumor cells.

8. The method of any one of claims 1-7, further comprising administering to the subject a therapeutically effective amount of radiation.

9. The method of any one of claims 1-8, further comprising administering to the subject a therapeutically effective amount of at least one chemotherapeutic agent.

10. The method of any one of claims 1-9, wherein the tumor cells produce Gb<sub>3</sub>.

11. The method of any one of claims 1-10, wherein the subject is a human.

12. The method of any one of claims 1-11, wherein the B subunit of Shiga toxin is  
5 conjugated to a therapeutic moiety.

13. A method of identifying a compound capable of preventing, reducing, or  
inhibiting tumor cell invasiveness and metastasis comprising:

- 10           a)       contacting a cell that produces Gb<sub>3</sub> with a test compound; and  
             b)       measuring Gb<sub>3</sub> production or activity by the cell,

wherein a compound which reduces or inhibits Gb<sub>3</sub> production by the tumor cells is  
identified as a compound capable of preventing, reducing, or inhibiting tumor cell metastasis.

14. The method of claim 13, wherein measuring Gb<sub>3</sub> production comprises  
15 measuring the level Gb<sub>3</sub> Synthetase mRNA.

15. The method of claim 14, wherein the Gb<sub>3</sub> Synthetase mRNA level is measured  
using a method selected from the group consisting of: Northern blotting, RNase protection,  
primer extension, and RT-PCR.

20           16. The method of claim 13, wherein measuring Gb<sub>3</sub> expression comprises  
measuring the level Gb<sub>3</sub> lipid.

25           17. The method of claim 16, wherein the Gb<sub>3</sub> lipid level is measured using a  
method selected from the group consisting of: chromatography, ELISA, RIA, FACS, and  
immunocytochemistry.